Vacuolating encephalopathy and retinopathy associated with a nodavirus-like agent: a probable cause of mass mortality of wild Golden grey mullet (Liza aurata) and Sharpnose grey mullet (Liza saliens) in Iranian waters of the Caspian Sea

ABSTRACT

Mullets are dominant fishes in the catch composition in the southern coasts of the Caspian Sea and after (Rutilus frisii kutum Kamensky, 1901) have a worthy role in production of marine proteins and incomings of north provinces of Iran. Mullets stocks decreased dramatically in recent decades in the Caspian Sea and catch amount reached from 6446 MT on 2002 to 2151 MT in 2012. Mysterious mortalities occurred in wild mullet (Liza auratu) and (Liza saliens) in Iranian waters of Caspian Sea in recent years. Regarding to investigation of causative agent of mentioned outbreak about 322 suspected samples were collected from coastal capture sites of Iranian north provinces in 2008 till 2011. Moribund fish revealed skin darkening, erratic swimming, belly-up at rest and high distension of swim bladder. Target tissues such as brain and eye were removed and then fixed for histopathology and TEM assay. Widespread and massive vacuolation were observed in brain, spinal cord, retina and optical nerve and intracytoplasmic vacuoles and virus particles in retina. So concerning to clinical signs, histopathological and TEM findings, it could be concluded that nodavirus-like agent could be probable cause of mass mortality of wild mullet in Iranian waters of the Caspian Sea.

Keyword: Histopathology; TEM; Nodavirus-like; Caspian Sea; Iran